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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,658	10/19/2001	Martin Richardson	UCF-306CIP	8661

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EXAMINER
THOMAS, COURTNEY D

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 01/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/082,658	RICHARDSON, MARTIN	
	Examin r	Art Unit	
	Courtney Thomas	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 October 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claim10 is objected to because of the following informalities: Claim 10 attempts to further limit claim 1, by specifying room temperature parameters. Examiner notes that the term "room temperature" does not appear within the preamble or body of claim 1. Appropriate correction is required.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster et al. (U.S. Patent 6,307,913).

3.

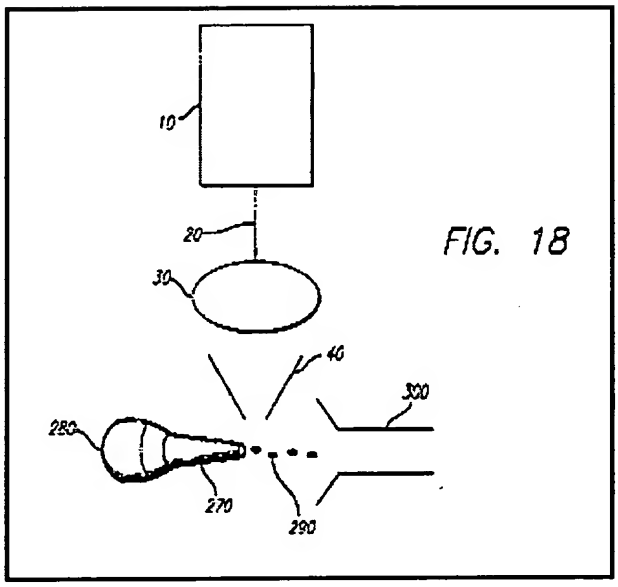

FIG. 18

Figure 18 - U.S. Patent 6,307,913 to Foster et al.

4. As per claim 1, Foster et al. disclose a method comprising the steps of forming droplets (**290**); passing droplets into individual target sources (Fig. 18, above); irradiating individual target sources with a laser beam (**20, 40**) and producing emissions (abstract; column 10, lines 15-17) from the irradiated target sources (**290**). Foster et al. do not explicitly disclose a method wherein the droplets are micron sized and contain nano-particles, nor is there explicit disclosure of the irradiating laser beam having substantially identical diameter to each individual droplet.

5. Foster et al. teach the selection of target sources wherein the generation of desired wavelengths is achieved (column 9, lines 4-17). Foster et al. suggest that in order to reduce the formation of debris, target sources should be small enough so that upon irradiation, no thermal gradients exist within the target source. The existence of such gradients generally leads to localized ablations of target material and debris formation. Foster et al. suggest the use of micro pellets as suitably sized target sources (column 10, lines 22-30). Examiner notes herein that small target sizes enable laser sources to successfully irradiate an entire target, thereby avoiding

substantial debris formation. Foster et al. teach that target sources may be additionally treated to regulate emissions spectrums (column 10, lines 22-24). Examiner notes that such teaching suggests that the additives be smaller than the source itself and are also useful in controlling the emissions spectrum.

6. It would have been obvious to modify the method of Foster et al. such that it incorporated micron sized droplets containing nano-size particles and irradiating the droplets with a laser beam having substantially identical diameter to each individual droplet. One would have been motivated to make such a modification so that target sources are configured to achieve a desired emissions output and are able to be totally irradiated, thereby reducing the amount of debris produced within the system as taught by Foster et al. (column 9, lines 4-17; column 10, lines 22-30).

7. As per claims 2-18, Foster et al. as modified above disclose a method wherein the target is a liquid (column 9, lines 4-5, 7-9,13-17) and contains metal additives (column 10, lines 22-24); Foster et al. also disclose a method wherein radiation emissions are generated in the EUV, XUV and X-ray wavelengths (i.e. abstract; column 1, lines 19-37).

8. It would have been obvious to modify the method of Foster et al. such that the target is liquid and contains metal additives and wherein radiation emissions are generated in the EUV, XUV and X-ray wavelengths. One would have been motivated to make such a modification so that the target sources are configured to generate emissions of desired spectral wavelengths upon exposure to an irradiating source, and for reducing the debris resulting from such exposure as taught by Foster et al. (i.e. abstract; column 1, lines 19-37; column 9, lines 4-5, 7-9,13-17; column 10, lines 22-24).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Courtney Thomas whose telephone number is (703) 306-0473. The examiner can normally be reached on M - F (9 am - 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305 3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Courtney Thomas

January 9, 2003

ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800